

U.S. Application No. 09/699,019, filed October 27, 2000
Attorney Docket No. 15258US05
Response dated July 21, 2006
In Reply to Office Action of April 21, 2006

REMARKS

Claims 1-66 are pending in the present application. The Examiner has merely objected to claims 2-11, 14-19, 36-45 and 47-53. Claims 1, 12, 13, 20-35, 46 and 54-66 stand rejected under 35 U.S.C. § 103(a) as being obvious.

I. PATENTABLE SUBJECT MATTER

Applicants gratefully acknowledge the indication by the Examiner that claims 2-11, 14-19, 36-45 and 47-53 recite patentable subject matter. However, in view of the remarks below, it is believed that claims 2-11, 14-19, 36-45 and 47-53 are in condition for allowance.

II. STIKVOORT CITED AGAIN FOR A NOTCH FILTER?

Applicants respectfully submit that it is absolutely inexplicable that as of July 21, 2006, the Examiner is still citing United States Patent No. 6,236,847 B1 ("Stikvoort") as illustrating a notch filter in FIG. 1.

Applicants have painstakingly explained, with great patience, that Stikvoort does not describe, teach or suggest a notch filter.

Applicants explained this in the Response of January 30, 2004.

Applicants explained this in the Reply of August 24, 2004.

Applicants explained this in the Appeal Brief of July 18, 2005.

Applicants explained this in the Response of February 7, 2006.

Applicants respectfully draw the attention of the Examiner to relevant section from the Appeal Brief of July 18, 2005, which is reproduced below as a courtesy.

In each of the Office Actions in the present application, the Examiner has alleged that Stikvoort teaches a notch filter. See, e.g., the Office Action Made Final mailed December 28, 2004 at page 2 ("Stikvoort (sic) discloses a notch filter (fig. 1)"). Applicants have repeatedly argued that Stikvoort does not disclose a notch filter in FIG. 1 of Stikvoort. Nevertheless, despite repeated requests, the Examiner has refused to retract his allegation. Applicants respectfully submit that Stikvoort does not teach a notch filter in FIG. 1 of Stikvoort. In fact, Stikvoort discloses a filter arrangement characterized by a bandpass filter function. A bandpass filter is generally the opposite of a notch filter, which is a type of

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bandstop filter. Applicants respectfully submit that, in general, a bandpass filter is the opposite of a bandstop filter (e.g., a notch filter).

For support that Stikvoort describes a bandpass filter, Applicants respectfully draw the attention of the Board to line 10 of the Abstract of Stikvoort (“[i]n this way a band-pass transfer function is obtained”); col. 1, lines 59-60 of Stikvoort (“[b]y using these measures it becomes possible to obtain a receiver with an asymmetric band pass transfer function”); col. 2, line 1 of Stikvoort (“a band pass transfer function is obtained”); and col. 4, lines 19-20 (“[c]onsequently a bandpass characteristic is obtained”).

Accordingly, Stikvoort does not disclose a notch filter as incorrectly alleged by the Examiner, but instead uses a first polyphase filter 16 and a second polyphase filter 19 to obtain a receiver 2 with an asymmetric bandpass transfer function. See, e.g., col. 1, lines 29-67; col. 2, lines 1-2; and FIG. 1 of Stikvoort. The bandpass filter in Stikvoort appears to allow only the desired frequency range to pass through the two polyphase filters 16, 20 before being demodulated by the demodulator 21. Thus, for example, a communications signal at a particular frequency within the desired frequency range would pass through the two polyphase filters 16, 20 before being demodulated by the demodulator 21.

Appeal Brief of July 18, 2005 at pages 5-6.

It is respectfully requested that the Examiner withdraw Stikvoort as the basis of the obviousness rejections as set forth in the Office Action of April 21, 2006.

III. STIKVOORT TEACHES AWAY FROM A NOTCH FILTER

Applicants have painstakingly explained, with great patience, that Stikvoort does not describe, teach or suggest a notch filter, but instead teaches an asymmetric band pass filter. A band pass filter is the OPPOSITE of a band stop filter such as a notch filter.

Applicants explained this in the Response of January 30, 2004.

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IV. IMPROPERLY COMBINING WITH STIKVOORT

The Examiner cannot combine other documents with Stikvoort because (1) the prohibition against changing the principle of operation of the Stikvoort and (2) the prohibition against rendering Stikvoort unsatisfactory for its intended purpose.

Applicants explained this in the Response of January 30, 2004.

Applicants explained this in the Reply of August 24, 2004.

Applicants explained this in the Response to the Office Action Made Final of February 28, 2005.

Applicants explained this in the Appeal Brief of July 18, 2005.

Applicants explained this in the Response of February 7, 2006.

The prohibition against changing the principle of operation of Stikvoort is supported by M.P.E.P. § 2143.01(VI) which states that “[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious”.

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Accordingly, Stikvoort does not disclose a notch filter as incorrectly alleged by the Examiner, but instead uses a first polyphase filter 16 and a second polyphase filter 19 to obtain a receiver 2 with an asymmetric bandpass transfer function. See, e.g., col. 1, lines 29-67; col. 2, lines 1-2; and FIG. 1 of Stikvoort. The bandpass filter in Stikvoort appears to allow only the desired frequency range to pass through the two polyphase filters 16, 20 before being demodulated by the demodulator 21. Thus, for example, a communications signal at a particular frequency within the desired frequency range would pass through the two polyphase filters 16, 20 before being demodulated by the demodulator 21.

... The Examiner alleges that the teachings of [] can be used to modify the invention of Stikvoort to produce a notch filter. However, the Examiner has failed to consider that Stikvoort *requires* a bandpass transfer function to operate as described in Stikvoort. If the bandpass filter of Stikvoort is allowed to be changed into a notch filter (recalling that a notch filter is a type of bandstop filter), then clearly the receiver 2 of Stikvoort, which relies upon an asymmetric bandpass transfer function, would change the principle of operation of Stikvoort. By modifying the bandpass filter of a receiver 2 in Stikvoort to be a notch filter, the receiver 2 of Stikvoort would reject communication signals within the desired frequency range instead of rejecting communication signals outside the desired frequency range. Accordingly, Applicants respectfully submit that the principle of operation of Stikvoort would have to change in view of the proposed modification as alleged by the Examiner.

Appeal Brief of July 18, 2005 at pages 5-6.

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The prohibition against rendering Stikvoort unsatisfactory for its intended purpose M.P.E.P. § 2143.01(V) states that "[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification".

Applicants respectfully draw the attention of the Examiner to relevant section from the Appeal Brief of July 18, 2005, which is reproduced below as a courtesy.

As described above, Stikvoort describes a receiver 2 using two polyphase filters 16, 19 to produce an asymmetric bandpass filter function. Applicants respectfully submit that Stikvoort's intended purpose is to receive input signals via a receiver 2, down convert the signals using frequency converters 5, 13, and bandpass filter the signals using polyphase filters 16, 19 before demodulating the baseband signals at the demodulator 21.

On the other hand, the Examiner alleges that, by modifying the receiver 2 of Stikvoort with the teachings of [____], a notch filter may be produced. However, as discussed above, Stikvoort will not operate without its bandpass filter to pass through a particular frequency range in which, for example, desired communication signals may reside. The modifications to Stikvoort alleged by the Examiner effectively changes the bandpass filter of Stikvoort into a notch filter (which is the opposite of a bandpass filter). Applicants respectfully submit that, by changing the bandpass filter of Stikvoort into a notch filter as alleged by the Examiner, Stikvoort can no longer operate as a receiver 2 of communication signals. Instead of passing the desired frequency range containing the communication signals, the notch filter would simply stop (i.e., bandstop) the desired frequency range containing the relevant communications signals. Since the relevant communications signals never reach the demodulator 21, Stikvoort as modified by the Examiner would not be able to function as a receiver in a communications system -- which is its intended purpose.

Appeal Brief of July 18, 2005 at page 7.

For at least the above reasons, an obviousness rejection based on Stikvoort cannot be maintained.

It is respectfully requested that the Examiner withdraw Stikvoort as the basis of the obviousness rejections as set forth in the Office Action of April 21, 2006.

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V. STIKVOORT CITED EVEN AFTER APPEAL BRIEF?

All of the above arguments and rebuttal evidence were presented in one form or another in the Appeal Brief of July 18, 2005.

The Examiner must have found the above arguments and rebuttal evidence persuasive since, instead of filing an Examiner's Answer as set forth in M.P.E.P. § 1207, the Examiner decided to Reopen Prosecution and to present new rejections.

If the Examiner judged Applicants' arguments and rebuttal evidence to be persuasive in the Appeal Brief of July 18, 2005, why is the Examiner still citing Stikvoort?

Applicants respectfully request that the Examiner fully consider the arguments and rebuttal evidence made with respect to Stikvoort at least since January 30, 2004 and to consider withdrawing the obviousness rejections based on Stikvoort.

VI. STIKVOORT AND YU

Claims 1, 12, 13, 20-35, 46 and 54-66 stand rejected under 35 U.S.C. § 103(a) as being obvious over Stikvoort in view of United States Patent No. 6,804,359 B1 ("Yu"). Applicants respectfully traverse the rejection as set forth below.

Yu teaches polyphase filters 42, 44 that output a signal with a small amount of undesirable signal content and a large amount of undesirable signal content. See, e.g., Yu at col. 6, lines 6-7. The Summary of the Invention section describes this as "exaggerating the undesirable signal content". See, e.g., Yu at col. 2, lines 54-55. Yu describes these two sets of signals as "signals with a small amount of noise" and "signals with a large amount of noise". See, e.g., Yu at col. 4, lines 17-20. Yu teaches that a component different from the polyphase filters 42, 44, namely, adaptive filter 28 reduces "the undesirable signal content using the exaggerated undesirable signal content". See, e.g., Yu at col. 2, lines 55-57.

Stikvoort cannot combine the teachings of polyphase filters 16, 19 with the teachings of Yu with respect to polyphase filters 42, 44 of Yu. Yu's polyphase filters 42, 44 would have a detrimental effect on the circuitry of Stikvoort. Imagine if the polyphase filters 16, 19 of Stikvoort would unleash "undesirable signal content using exaggerated undesirable signal

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content" of the polyphase filters 42, 44 of Yu. Note that after Stikvoort's polyphase filter 16 in FIG. 1 is an amplifier 17. Thus, the already exaggerated undesirable signal content from the combined teachings of Stikvoort's polyphase filter and Yu's polyphase filter would be further amplified causing even greater noise in Stikvoort receiver 2 of FIG. 1.

In view of the destructive nature of the teachings of Yu's polyphase filters with respect to Stikvoort's polyphase filters in the receiver 2 of FIG. 1, it is puzzling that the Examiner states that one would "apply the technique of Yu to the system of Stikvoort [sic] in order to provide a polyphase filter circuit that can produce asymmetric poles as well as zeroes". Really? Applicants respectfully submit that one of ordinary skill in the art would not stick noise amplifying polyphase filters of Yu into the Stikvoort receiver 2 in FIG. 1. Why would the Examiner suggest sticking a noise exaggerator (i.e., a noise amplifier) in the Stikvoort receiver 2 in FIG. 1?

So one of ordinary skill in the art would sacrifice signal quality (since the polyphase filters of Yu exaggerate or amplify noise signals or undesirable signals) in order to "provide a polyphase filter circuit that can produce asymmetric poles as well as zeros". Really?

Applicants respectfully request that the Examiner contemplate that Yu and Stikvoort are clearly operating under different principles of operation and that to apply the teachings of Yu to Stikvoort with respect to their polyphase filters would have many negative consequences.

For at least the above reasons, the combination of Stikvoort and Yu is improper.

It is respectfully requested that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 1, 12, 13, 20-35, 46 and 54-66.

VII. STIKVOORT AND RICH

Claims 20-25 stand rejected under 35 U.S.C. § 103(a) as being obvious over Stikvoort in view of United States Patent No. 5,307,517 ("Rich"). Applicants respectfully traverse the rejection as set forth below.

Claim 20 recites "a notch filter" that comprises "notching means for notching a particular frequency of the input signal as a function of the phases".

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In the Office Action, the Examiner admits that Stikvoort does not teach at least the following elements: notching means for notching a particular frequency of the input signal as a function of the phases. Furthermore, as discussed above, Stikvoort does not teach a notch filter and, in particular, a notch filter that includes, for example, notching means for notching a particular frequency of the input signal as a function of the phases.

The Office Action rejects claims 20-25 based on an obviousness rejection that is based on modifying Stikvoort in view of the teachings of Rich.

In the section entitled "The Proposed Modification Cannot Change the Principle of Operation of a Reference", M.P.E.P. § 2143.01(VI) states that "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious". M.P.E.P. at page 2100-138 (Rev. 3, Aug. 2005)(case citation omitted).

As the Examiner will now appreciate in view of the above discussions, Stikvoort does not disclose a notch filter, but instead uses a first polyphase filter 16 and a second polyphase filter 19 to obtain a receiver 2 with an asymmetric bandpass transfer function. See, e.g., col. 1, lines 29-67; col. 2, lines 1-2; and FIG. 1 of Stikvoort. A bandpass filter allows only the desired frequency range to pass through the two polyphase filters 16, 20 before being demodulated by the demodulator 21. Thus, for example, a communications signal at a particular frequency within the desired frequency range would pass through the two polyphase filters 16, 20 before being demodulated by the demodulator 21.

On the other hand, Rich discloses an adaptive notch filter for FM interference cancellation. See, e.g., the title of Rich ("Adaptive Notch Filter For FM Interference Cancellation"). The Examiner alleges that the teachings of Rich can be used to modify the invention of Stikvoort to produce a notch filter. However, the Examiner has failed to consider that Stikvoort needs a bandpass transfer function to operate as described in Stikvoort. If the bandpass filter of Stikvoort is allowed to be changed into a notch filter (recalling that a notch filter is a type of bandstop filter), then the receiver 2 of Stikvoort, which relies upon an

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asymmetric bandpass transfer function, would undeniably change the principle of operation of Stikvoort.

Applicants respectfully submit that, according to M.P.E.P. § 2143.01(VI), such a change in the principle of operation of Stikvoort is not allowed and, according to M.P.E.P. § 2143.01(VI), the teachings of Stikvoort and Rich are insufficient to render the claims *prima facie* obvious.


VIII. CONCLUSION

In view of at least the foregoing, it is respectfully submitted that the pending claims 1-66 are in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

The Commissioner is hereby authorized to charge additional fees or credit overpayments to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

Dated: July 21, 2006

Respectfully submitted,


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